UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,725	09/10/2003	Momtaz N. Mansour	T127 1010.1	3878

26158 7590 01/12/2009

WOMBLE CARLYLE SANDRIDGE & RICE, PLLC
ATTN: PATENT DOCKETING 32ND FLOOR
P.O. BOX 7037
ATLANTA, GA 30357-0037

EXAMINER	
MERKLING, MATTHEW J	
ART UNIT	**PAPER NUMBER**
1795	

MAIL DATE	DELIVERY MODE
01/12/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/659,725	MANSOUR ET AL.	
	Examiner	Art Unit	
	MATTHEW J. MERKLING	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 November 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19-23,25,26,28-31,33-38,40-43,45,94-103,105-112 and 114* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19-23,25,26,28-31,33-38,40-43,45,94-103,105-112 and 114* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atwell (US 2,680,065) in view of Mansour et al. (US 5,306,481).

Regarding claim 19, Atwell discloses a process for producing a product gas having heat or fuel value (col. 5 lines 73-75) comprising:

feeding a carbonaceous material (coal) to a first fluidized bed (37), the first fluidized bed containing particles suspended in a fluid medium (i.e. fluidized bed, col. 4 lines 33-43);

indirectly heating the first fluidized bed with a combustion device (52), at least a portion of the carbonaceous material being gasified to form a first product gas stream (38);

extracting bed solids containing carbon from the first fluidized bed (via conduit 46) and feeding the extracted solids to a second fluidized bed/solids collection reservoir (44) separate from the first fluidized bed, the second fluidized bed being at a temperature higher than the temperature of the first fluidized bed (see col. 6 lines 29-35 which discloses that heat from the combustion of the char is used to heat the first fluidized bed,

37), the second fluidized bed having a fluidizing medium comprising steam and an oxygen-containing gas (see O_2 and steam indication in Fig. 2, conduit 43), wherein:

a first portion of the extracted bed solids is oxidized in the second fluidized bed and a second portion of the extracted bed solids is endothermically converted to a gas in the second fluidized bed, to thereby form a second product gas stream (gasification/partial oxidation, col. 4 lines 33-68); and

the second fluidized bed is heated by oxidizing carbon in the bed and without and external heat source (see col. 6 lines 29-35 which discloses that heat from the combustion of the char is used to heat the first fluidized bed, 37).

Atwell teaches a method and apparatus for gasifying carbonaceous materials in which a combustion heat source (52) indirectly heats the first fluidized bed (37), but does not explicitly teach a pulse combustion device.

Mansour also discloses a method and apparatus for gasifying carbonaceous materials (such as black liquor) in a fluidized bed (see abstract).

Mansour teaches resonant tubes (5) extending into the fluid-bed reactor (1) which are coupled to a pulse combustor (2) in order to provide a more efficient heat transfer mechanism between the combustion device and the fluidized bed (C11/L24-30).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the pulse combustor of Mansour to the combustion device/heat exchanger of Atwell as a way to improve the efficiency of the heat transfer between the combustion device and the fluidized bed.

Regarding claim 20, while Atwell does not explicitly disclose the first fluidized bed operated at a temperature of less than 1150 degrees F, process variables (ie temperature and pressure) are considered results effective variables and are not considered to confer patentability to the claim. As such, without showing unexpected results, the claimed process variables (i.e. temperature and pressure) cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the temperature and pressure to obtain the desired results (In re Boesch, 617 F. 2d. 272,205 USPQ 215 (CCPA 1980)). Since it has been held that where general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (In re Aller, 105 USPQ 223).

3. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Atwell (US 2,680,065) in view of Mansour et al. (US 5,306,481) as applied to claim 19 above and evidenced by Andersson (US 5,861,046).

Regarding claim 21, Atwell teaches recovering a combustible gas from a carbonaceous material but does not specifically disclose black liquor as the carbonaceous material. However, it is well known in the art that black liquor is simply another carbonaceous material that is well known in the art to be gasified in a fluidized bed reactor (see Andsersson, col. 1 lines 11-35). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to gasify a black liquor in the fluidized bed of modified Atwell, as such a modification is nothing more that substituting

one known element (black liquor for coal) for another in order to produce entirely predictable results.

4. Claims 19-23, 25, 26, 28-31, 33-38, 40-43, 45, 94-103, 105-112 and 114 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monacelli et al. (US 5,752,994) in view of Mansour (US 5,306,481) and Atwell (US 2,680,065).

Regarding claim 19, Monacelli discloses a process for producing a product gas having heat or fuel value (see abstract) comprising:

feeding a carbonaceous material (black liquor, through conduit 12, see Fig. 3) to a first fluidized bed (54), wherein the first fluidized bed containing particles suspended in a fluid medium (such as sodium carbonate, col. 58-60);

indirectly heating the first fluidized bed with a combustion device (62), at least a portion of the carbonaceous material being gasified to form a first product gas stream (which exits through conduit 58, see Fig. 3);

extracting bed solids containing carbon from the first fluidized bed and feeding the extracted solids to a second fluidized bed separate from the first fluidized bed (see col. 5 lines 36-42 and col. 7 lines 25-30 which discloses removing the unreacted carbon from the first fluidized bed and recycling it to be burned in the second fluidized bed), the second fluidized bed being at a temperature higher than the temperature of the first fluidized bed (col. 7 lines 17-24), the second fluidized bed having a fluidizing medium comprising steam and an oxygen-containing gas (col. 7 lines 17-24).

Monacelli, however, does not explicitly disclose the first fluidized bed containing a pulse combustion device.

Mansour also discloses a method and apparatus for gasifying carbonaceous materials (such as black liquor) in a fluidized bed (see abstract).

Mansour teaches resonant tubes (5) extending into a fluid-bed reactor (1) which are coupled to a pulse combustor (2) in order to provide a more efficient heat transfer mechanism between the combustion device and the fluidized bed (C11/L24-30).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the pulse combustor of Mansour to the combustion device/heat exchanger of Monacelli as a way to improve the efficiency of the heat transfer between the combustion device and the fluidized bed.

Furthermore, Monacelli discloses the extracted bed solids is oxidized in the second fluidized bed, but does not explicitly disclose that a second portion of the extracted bed solids is endothermically converted to a gas in the second fluidized bed, to thereby form a second product gas stream, nor does Monacelli teach the second fluidized bed is heated by oxidizing carbon in the bed, and without an external heat source (although Monacelli does disclose the preference for reducing the dependency on an external heat source, see col. 7 lines 17-24).

Atwell also discloses producing a gas from a carbonaceous medium which has a heating value (see abstract).

Atwell teaches extracting bed solids from a first fluidized bed (37) and directing them to a second fluidized bed (44) where they are oxidized to provide heat to the first

fluidized bed (col. 5 lines 14-20). Atwell also discloses that some of the extracted bed solids from the first fluidized bed are endothermically gasified in the second fluidized bed in order to complete the gasification of the carbon material and produce a second product stream (col. 5 lines 14-40). Atwell also discloses utilizing the coal gas/product gas as a fluidizing medium for the first fluidized bed in order to eliminate the need for an additional fluidizing medium (col. 4 lines 44-56).

As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to add the step of endothermically converting a second portion of the extracted bed solids in the second fluidized bed to produce a second product gas while still oxidizing a first portion of the extracted bed solids to provide heat to the first fluidized bed, as taught by Atwell, to the process of Monacelli (where a portion of the gas produced in the lower fluidized bed would be extracted as a product, while the other portion of the gas would be utilized as the fluidizing gas for the first fluidized bed) in order to complete the gasification of the entrained bed solids while still producing a fluidizing gas for the first fluidized bed without needing an additional fluidizing medium.

Furthermore, Altwell teaches heating the second fluidized bed with the combustion of the extracted bed solids and eliminating the need for an external heat source (see Altwell, col. 6 lines 29-35 which discloses that heat from the combustion of the char is used to heat the first fluidized bed, 37).

As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to operate the second fluidized bed of Monacelli in a manner which would combust a sufficient amount of entrained bed solids in order to provide sufficient heat for

the second fluidized bed, as taught by Atwell, in order to eliminate the need for an external heat input.

Regarding claim 20, Monacelli discloses a process as defined in claim 19, wherein the first fluidized bed is maintained at a temperature of less than about 1150 degrees F (C6/L20-25).

Regarding claim 21, Monacelli discloses a process as defined in claim 19, wherein the carbonaceous material comprises black liquor (C4/L13).

Regarding claim 22, Monacelli discloses a process wherein the first product gas stream is fed to a filtering device for filtering solids entrained in the first product gas stream, the filtered solids being recirculated back to the first fluidized bed (filter 18, see Fig. 3).

Regarding claim 25, Monacelli discloses a process as defined in claim 19, wherein the portion of the carbonaceous material gasified in the first fluidized bed is endothermically converted to a gas (C3/L63-67).

Regarding claim 26, Monacelli discloses a process as defined in claim 19, wherein the fluidized bed particles contained in the first fluidized bed and the second fluidized bed comprise sodium carbonate (C1/L49-57).

Regarding claim 28, Monacelli further discloses the second product gas stream is filtered in order to remove entrained solids (C6/L40-46).

Regarding claim 29, Monacelli discloses a process as defined in claim 19, wherein bed solids are periodically extracted from the second fluidized bed (C6/L30-45).

Regarding claim 30, Monacelli discloses a process as defined in claim 29, wherein the re-circulated bed solids are mixed with the carbonaceous material being injected into the first fluidized bed (C6/L40-45).

Regarding claim 31, Monacelli discloses a process as defined in claim 19, wherein the first product gas stream is combined with the second product gas stream (C6/L8-51, disclosing that product gases are circulated between upper and lower beds, therefore combining the product gas streams).

Regarding claims 33, 34, 40, 94, 101, 106, 111, 112 and 114 Monacelli discloses a process for producing a product gas having heat or fuel value (see abstract) comprising:

feeding a carbonaceous material to a fluidized bed (black liquor, through conduit 12 into fluidized bed 54), see Fig. 3), the fluidized bed containing particles suspended in a fluid medium (such as sodium carbonate and carbonaceous particles, col. 58-60), the fluidized bed including a top portion (top half of fluidized bed 54) and a bottom portion (bottom half of fluidized bed 54), the bottom portion being in communication with a solids collection reservoir (76) located below the bottom portion (see Fig. 3);

indirectly heating the fluidized bed with a combustion device (62), a portion of the carbonaceous material fed to the fluidized bed being gasified to form a product gas stream (which exits through conduit 58, see Fig. 3); and

feeding a gaseous medium through the solids collection reservoir (via conduits 2,3,4 and 5 comprising steam and an oxygen-containing gas, col. 6 lines 7-20), and into the bottom portion of the fluidized bed where the gaseous medium gasifies carbon particles (see Fig. 3 where gas is introduced into the solids collection reservoir 76 and the pass up

to act as the fluidizing medium for the fluidized bed 54), the gaseous medium comprising an oxygen-containing gas (col. 6 lines 52-59), the gaseous medium gasifying carbon particles that have accumulated in the bottom portion of the fluidized bed (as discussed above), wherein:

a first portion of the carbon particles contained in the solids collection reservoir is oxidized and a second portion of the carbon particles contained in the solids collection reservoir is endothermically converted to a gas.

Furthermore, Monacelli discloses the carbon particles is oxidized in the solids collection reservoir (col. 7 lines 25-30), but does not explicitly disclose that a second portion of the carbon particles is endothermically converted to a gas in the solids collection reservoir, to thereby form a second product gas stream.

Atwell also discloses producing a gas from a carbonaceous medium which has a heating value (see abstract).

Atwell teaches extracting bed solids from a fluidized bed (37) and directing them to a solids collection reservoir (44) where they are oxidized to provide heat to the fluidized bed (col. 5 lines 14-20). Atwell also discloses that some of the carbom particles in the solids collection reservoir are endothermically gasified in order to complete the gasification of the carbon material and produce a second product stream (col. 5 lines 14-40).

As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to add the step of endothermically converting a second portion of the carbon particles in the solids collection reservoir to produce a second product gas while

still oxidizing a first portion of the carbon particles to provide heat to the fluidized bed, as taught by Atwell, to the process of Monacelli (where a portion of the gas produced in the solids collection reservoir would be extracted as a product, while the other portion of the gas would be utilized as the fluidizing gas for the fluidized bed) in order to complete the gasification of the carbon particles while still producing a fluidizing gas for the fluidized bed without needing an additional fluidizing medium.

Furthermore, Monacelli does not explicitly disclose the first fluidized bed containing a pulse combustion device.

Mansour also discloses a method and apparatus for gasifying carbonaceous materials (such as black liquor) in a fluidized bed (see abstract).

Mansour teaches resonant tubes (5) extending into a fluid-bed reactor (1) which are coupled to a pulse combustor (2) in order to provide a more efficient heat transfer mechanism between the combustion device and the fluidized bed (C11/L24-30).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the pulse combustor of Mansour to the combustion device/heat exchanger of Monacelli as a way to improve the efficiency of the heat transfer between the combustion device and the fluidized bed.

Regarding claims 35, 36, 97, 98, 107 and 108, Monacelli discloses a process as defined in claims 33 and 94, wherein the fluidized bed is maintained at a temperature of less than about 1100 degrees F (C6/L20-25).

Regarding claims 37, 99 and 109, Monacelli discloses a process as defined in claims 33 and 94, wherein the first product gas stream is fed to a filtering device for filtering

solids entrained in the product gas stream, the filtered solids being recirculated back to the fluidized bed (C4/L18-21).

Regarding claims 41 and 102, Monacelli discloses a process as defined in claims 33 and 94, wherein the carbonaceous material comprises black liquor (C4/L13).

Regarding claims 42, 43, 45, 95, 96, 103 and 105, Monacelli discloses the particles suspended in the fluidized bed comprise sodium carbonate (col. 3 lines 27-38) and the fluidizing medium comprises steam (col. 2 lines 51-54), the carbonaceous material being fed to the fluidized bed comprising black liquor (see abstract), a majority of the black liquor being steam reformed in the fluidized bed, and wherein a portion of the carbon particles that have accumulated in the bottom portion of the fluidized bed are oxidized, while another portion of the carbon particles are steam reformed.

While Monacelli does not explicitly disclose steam reforming of the black liquor, the claimed and prior art product(s) are identical or substantially identical, or are produced by identical or substantially identical process(es) the burden of proof is on applicant to establish that the prior art product(s) do not necessarily or inherently possess the characteristics of the instantly claimed product(s), see In re Best, 195 USPQ 430.

5. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ashworth (US 4,097,361) in view of Mansour et al. (US 5,306,481).

Regarding claim 19, Ashworth discloses a process for producing a product gas having heat or fuel value (see abstract) comprising:

feeding a carbonaceous material (can process a variety of carbon containing fuels, see abstract) to a first fluidized bed (30), wherein the first fluidized bed containing particles suspended in a fluid medium (fluidized bed, see abstract, col. 3 lines 64-68);

at least a portion of the carbonaceous material being gasified to form a first product gas stream (inherently from pyrolysis/gasification occurring in fluidized bed 40);

extracting bed solids containing carbon (via conduit and valve 84) from the first fluidized bed and feeding the extracted solids to a second fluidized bed/solids collection reservoir (40, col. 12 lines 26-33) separate from the first fluidized bed (see Fig. 2), the second fluidized bed being at a temperature higher than the temperature of the first fluidized bed (see abstract), the second fluidized bed having a fluidizing medium comprising steam (via conduit 36, see Fig. 2) and an oxygen-containing gas (via conduit 141, see Fig. 2), wherein:

a first portion of the extracted bed solids is oxidized in the second fluidized bed and a second portion of the extracted bed solids is endothermically converted to a gas in the second fluidized bed, to thereby form a second product gas stream (see col. 7 lines 2-7 which discloses that partial oxidation occurs in gasification zone 40 in order to produce heat as well as low BTU fuel gas).

The method of Ashworth teaches utilizing heat from the partial combustion of char in second fluidized bed (40) as the sole source of heat required for the first fluidized bed (30, see abstract). As such, Ashworth does not teach a pulse combustion device which heats the first fluidized bed where an endothermic reaction takes place.

Mansour also discloses a method and apparatus for endothermically generating a fuel gas from carbonaceous materials in a fluidized bed (see abstract).

Mansour teaches resonant tubes (5) extending into a fluid-bed reactor (1) which are coupled to a pulse combustor (2) in order to provide a more efficient heat transfer mechanism between the combustion device and the fluidized bed (col. 11 lines 24-30).

As such, adding the pulse combustor of Mansour to the first fluidized bed of Ashworth would have been obvious to one of ordinary skill in the art a the time of the invention as a means to supplement the sole heat source for the endothermic reaction which takes place in the first fluidized bed with a highly efficient means to add heat.

Furthermore, such a modification would amount to nothing more than applying a known technique to a known device to yield predictable results.

Furthermore, Ashworth discloses the second fluidized bed (40) is heated by oxidizing carbon in the bed, and without an external heat source (via the exothermic combustion of char, as discussed above).

6. Claims 23, 38, 100 and 110 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monacelli et al. (US 5,752,994) in view of Mansour (US 5,306,481) and Atwell (US 2,680,065) as applied to claims 19, 33, 94 and 106 above, and further in view of Tanca (US 5,624,470).

Regarding claims 23, 38, 100 and 110, modified Monacelli discloses all of the limitations of the process as defined in claims 19, 33, 94 and 106, and wherein the fluidizing medium fed to the second fluidized bed contains oxygen (C6/L52-60), but does

not explicitly disclose in a stoichiometric amount of less than about 50% based on the amount of carbon in the bed.

Tanca discloses black liquor gasification carried out with oxygen in the range of 20-50% to result in gasification of more than 60-99% (C2/L26-45), and it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Monacelli to carry out the gasification reaction at stoichiometric amount of less than about 50% based on the amount of carbon in the bed for the desired resulting gasification products as such a modification is a result effective variable, where one skilled in the art would recognize to optimize a process variable by routine experimentation, for example in this case, control the results of the gas produced (Tanca, C2/L25-45). See In re Boesch, 617 F.2d 272, 276 (CCPA 1980); MPEP 2144.05.

Response to Arguments

7. Applicant's arguments submitted 11/5/08 have been fully considered but they are not persuasive.

On pages 13 and 14, Applicant argues that Ashworth teaches away from adding an external heat source to the first fluidized bed. The examiner respectfully disagrees with this argument. Ashworth simply states that direct heating (which Mansour is not, Mansour is indirect heating) is not necessary. Nowhere does Ashworth disclose that one cannot add an external heat source to the fluidized bed of Ashworth. Furthermore, such a modification may be necessary during periods of startup when a readily available heat source is not available to heat the fluidized bed.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. MERKLING whose telephone number is (571)272-9813. The examiner can normally be reached on M-F 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. J. M./
Examiner, Art Unit 1795

/Alexa D. Neckel/
Supervisory Patent Examiner, Art Unit 1795